

**ABSTRACT OF THE DISCLOSURE**

A process for cracking an olefin-rich hydrocarbon feedstock which is selective towards light olefins in the effluent, the process comprising contacting a hydrocarbon feedstock containing olefins having a first composition of at least one olefinic component with a crystalline silicate catalyst to produce an effluent having a second composition of at least one olefinic component, the feedstock and the effluent having substantially the same olefin content by weight therein as the feedstock. A process for the cracking of olefins in a hydrocarbon feedstock containing at least one diene and at least one olefin, the process comprising hydrogenating the at least one diene to form at least one olefin in the presence of a transition metal-based hydrogenation catalyst at an inlet temperature of from 40 to 200°C and an absolute pressure of from 5 to 50 bar with a hydrogen/diene molar ratio of at least around 1, and catalytically cracking the olefins in the presence of a crystalline silicate catalyst at an inlet temperature of from 500 to 600°C and an olefin partial pressure of from 0.1 to 2 bar to produce at least one olefin having a different olefin distribution with respect to average carbon number than the at least one olefin in the feedstock.